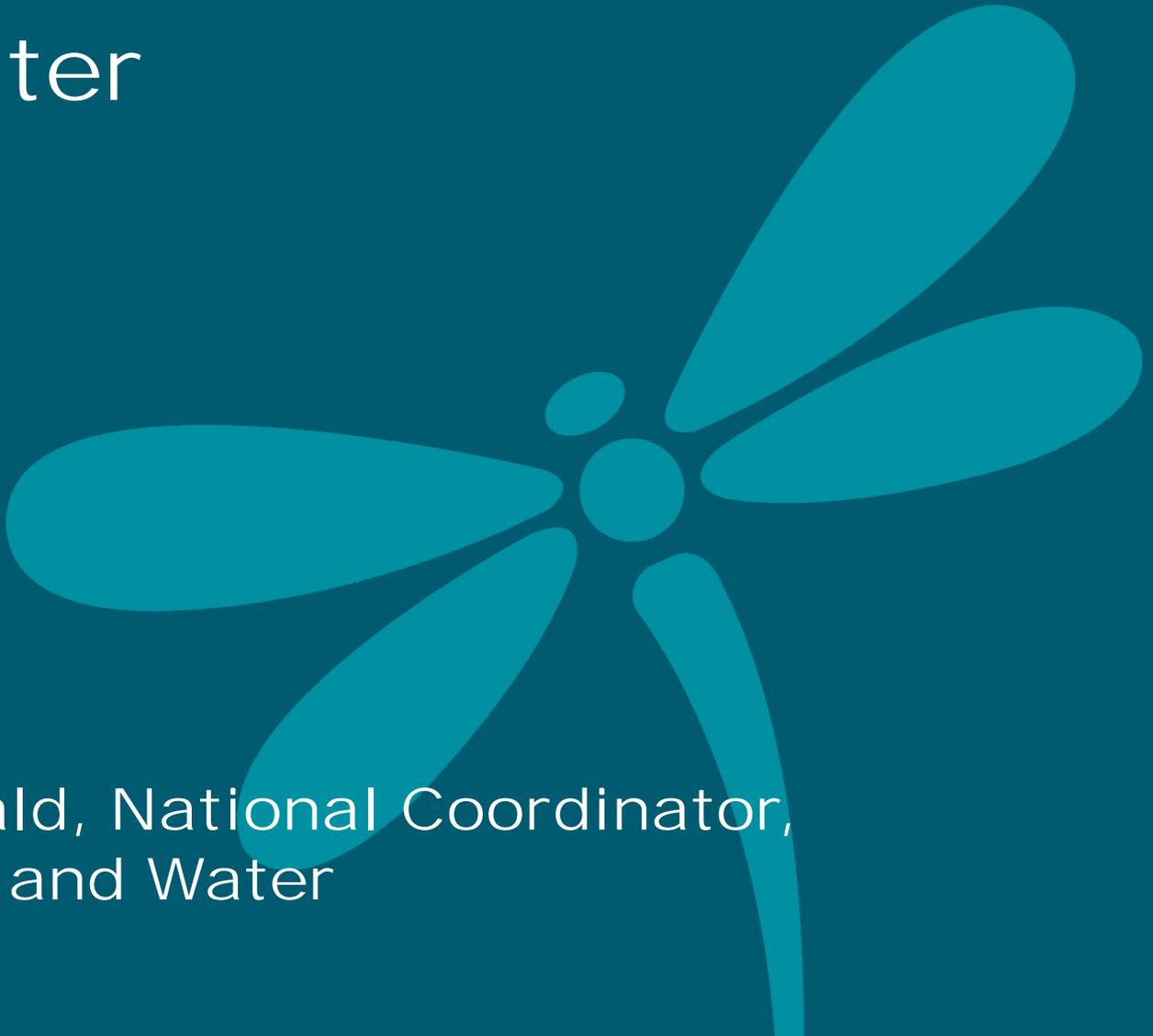




# Clean Water for Wildlife



Dr Naomi Ewald, National Coordinator,  
People Ponds and Water



# People, Ponds and Water

- Engage many thousands of people with activities that help them to learn about, participate in, and enjoy their freshwater heritage
- Make a nationally significant difference to the protection of freshwaters, and their biodiversity



# Clean Water for Wildlife

## A citizen science survey to:

- Raise awareness of the extent of nutrient pollution
- Find clean water habitats
- Help to protect freshwater biodiversity – via advocacy and in practice
- Case studies in 2016 – national public survey in 2017



# Why clean water? What is it?



# Why clean water? What is it?

- For wildlife, clean water is key. Some species are more sensitive than others, but essentially if you want to see all healthy communities ....then you need clean water habitats

- So what is clean water?  
Water without added pollution - this includes nutrients like phosphate and nitrate, but also a cocktail of various things in road run off (oils), sediments, and pesticides.

Why clean

# UK National Ecosystem Assessment

Understanding nature's value to society



LOTTERY FUNDED

## Technical Report

**Biodiversity underpins all ecosystem services.**

# The State of Natural Capital:

Towards a framework for measurement and valuation



# Understanding water quality

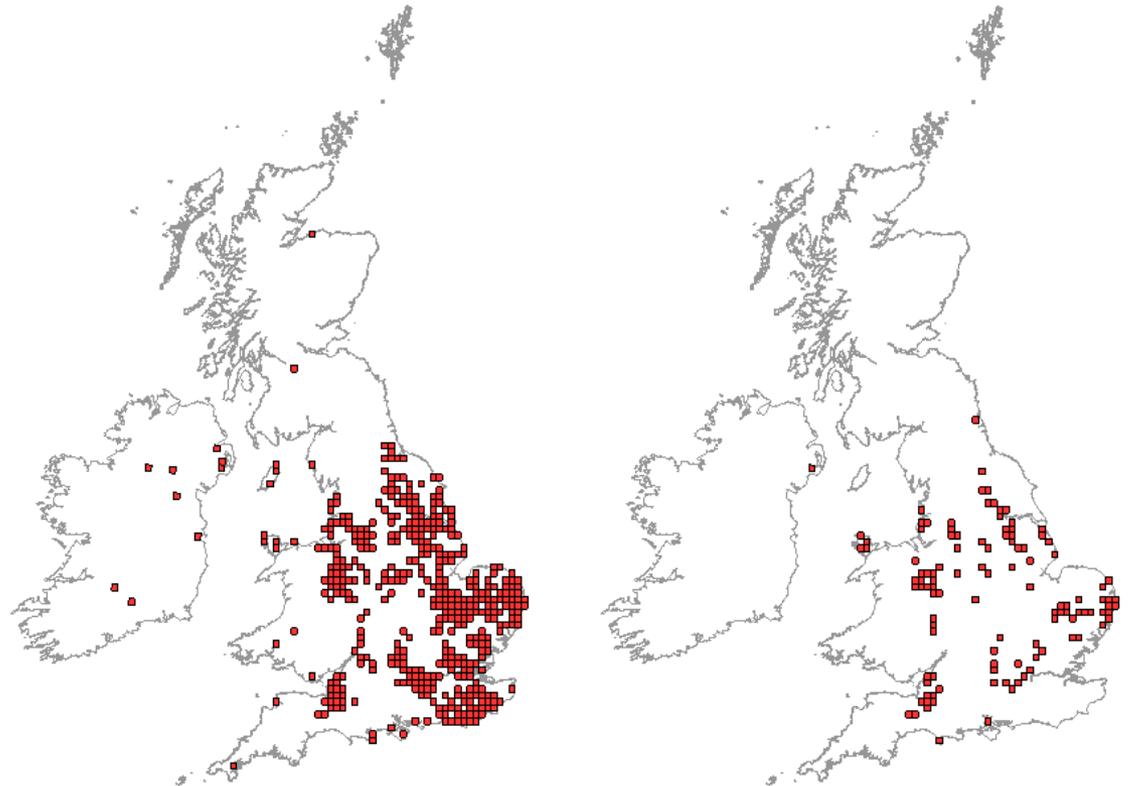
- **In the UK a large part of the threat to freshwaters is due to pollution especially:**
  - Intensive agriculture
  - Urban areas / roads
  - Sewage and other discharges
- **Most of England's rivers and lakes are highly polluted – too many nutrients, heavy metals, pathogens, pesticides, sediment**
- **Extinction rates for freshwater species 4 to 6 times higher than terrestrial and marine**



The English countryside on the Oxfordshire / Wiltshire border looks idyllic. Virtually all freshwaters in this landscape are seriously polluted

# The effect of pollution

## Water-violet



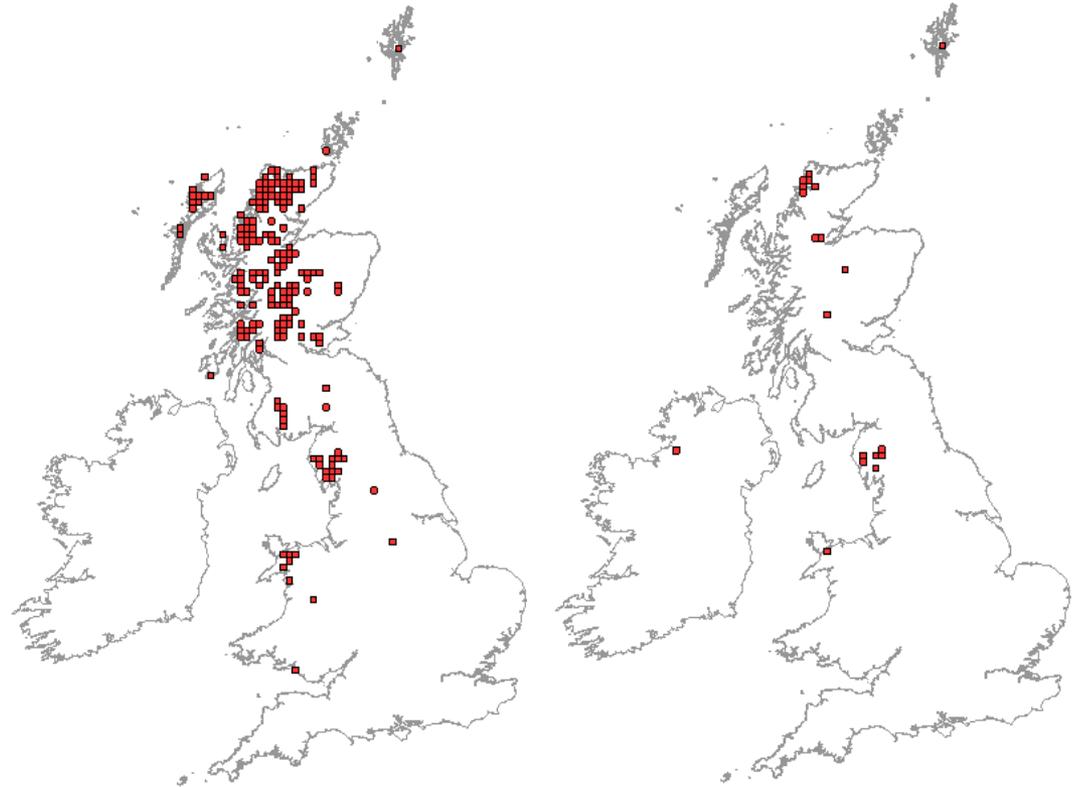
# The effect of pollution

Glutinous snail



# The effect of pollution

Arctic Charr



# Public perception... 2011

theguardian

News | Sport | Comment | Culture | Business

Environment > Conservation

## Freshwater wildlife thrive in rivers since Industrial Revolution

Otters, water voles and  
dramatic recoveries

Ian Sample, science  
The Guardian, Friday



## The Telegraph

HOME NEWS SPORT FINANCE  
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Earth News Environment Climate

### Sea trout and otters return to rivers

Sea trout, salmon and otters have returned to rivers since the 1990s, the Environment Agency hailed as the best decade for freshwater wildlife.



has a Google Chrome Extension. Get the latest news on the topics you like, direct to your browser.

JOHN O'FARRELLI DELAYED ADULTHOOD WILL DRIVE US ALL MAD

London HI 5°C / Lo 3°C

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### Britain's rivers come back to life

Wildlife flourishing as pollution is reversed, report reveals

By Michael McCarthy, Environment Editor

Friday, 31 December 2010

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31 December 2010 Last updated at 08:05

### Water quality in rivers 'good for wildlife'

Cleaner rivers in England and Wales have helped many species of wildlife, the Environment Agency says.

The last decade has been the best for rivers since the industrial revolution, it said.

Record numbers of salmon and sea trout were found in the Mersey, Tyne and Thames, while otters returned to every region in England and Wales.

The decade also saw the return of the water vole after a dramatic decline in the 1990s.

Incidents of serious water pollution have more than halved since 2001.

The River Thames won the International Theiss River Prize for outstanding achievement in river management and restoration earlier this year.



The water vole has made a recovery after numbers declined in the 1990s

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Banks break-up 'being considered'

Giffords move to rehab 'flawless'

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Six wives, 13 kids How Steve Ginger strives to be a 'good' father

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Thames voted 'worst river'

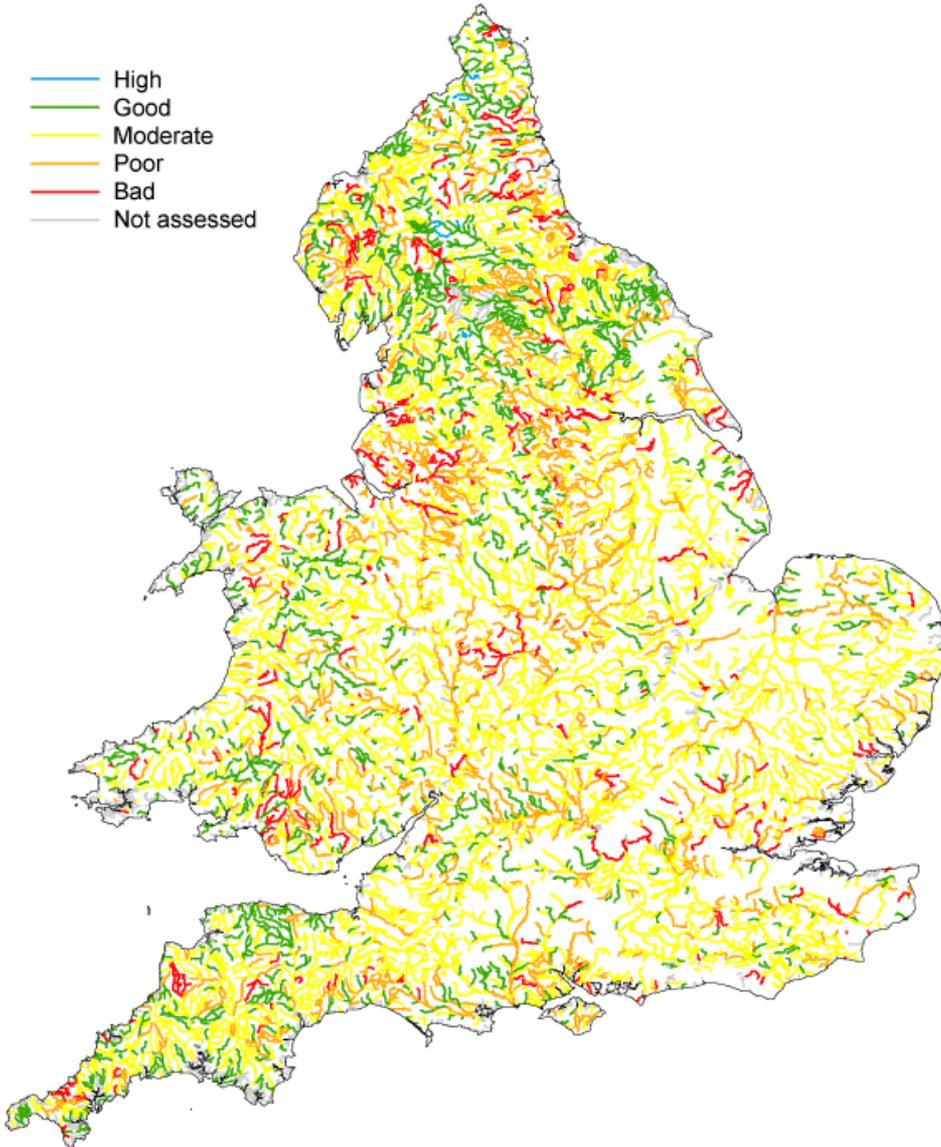
Salmon seen jumping Churnet weirs

IN EARTH

Actual data shows little change in since early 1980s, and the base from which it has changed was very low to start with!

# The state of our freshwaters

— High  
— Good  
— Moderate  
— Poor  
— Bad  
— Not assessed



- In England and Wales only 1 lake and 5 rivers *undamaged*, reaching 'High' status
- c.75% of rivers and lakes fail minimum legal standard of 'Good' status
- And, what about the small waters: ponds, streams, ditches, places that are rarely monitored for nutrient pollution.

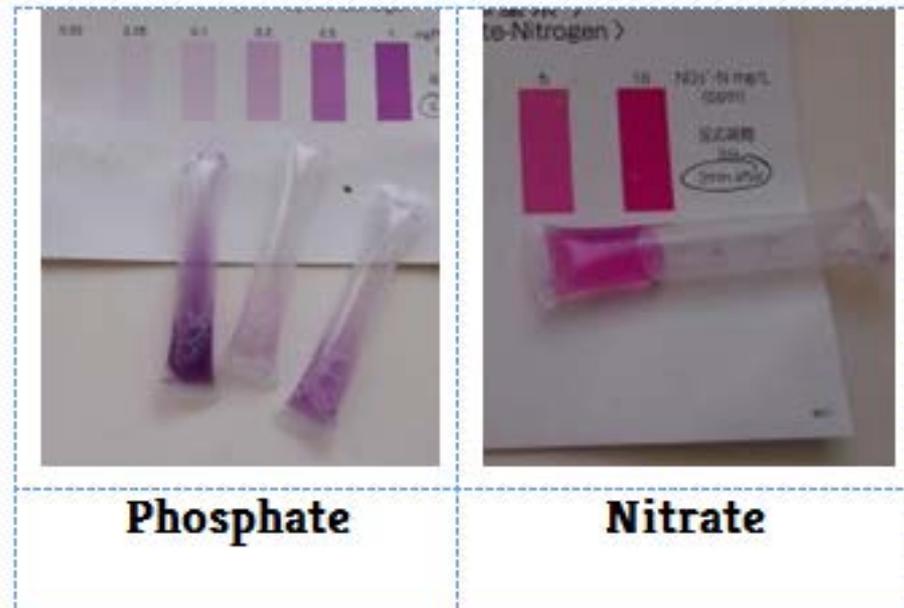
**We know nothing about nutrient pollution in 99% of our ponds, smaller streams, ditches and other freshwater habitats.**

# Clean Water for Wildlife

**Nutrient pollution is invisible so often doesn't seem 'real' to people.**

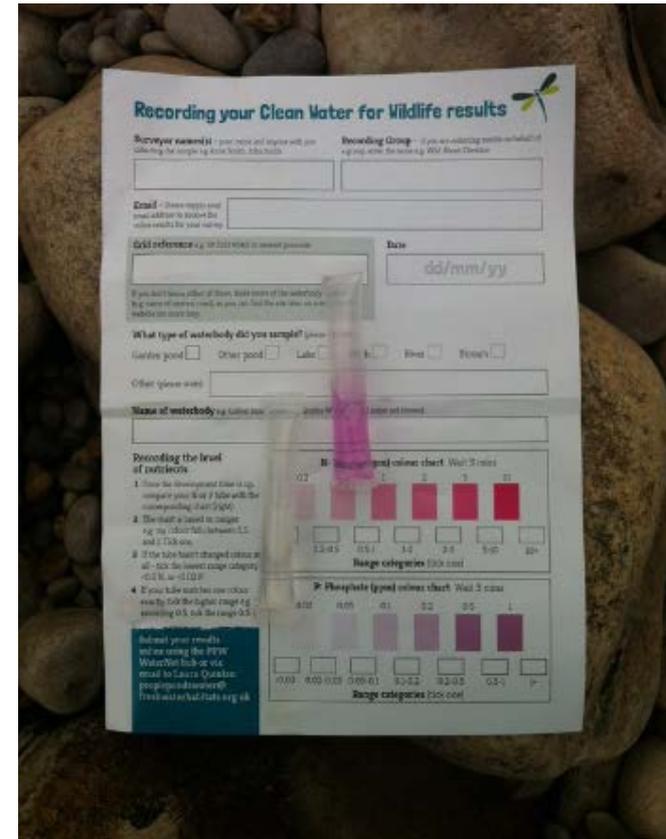
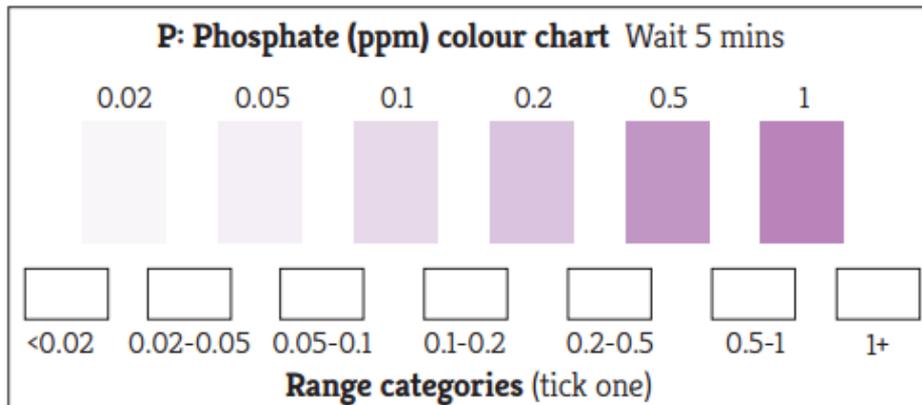
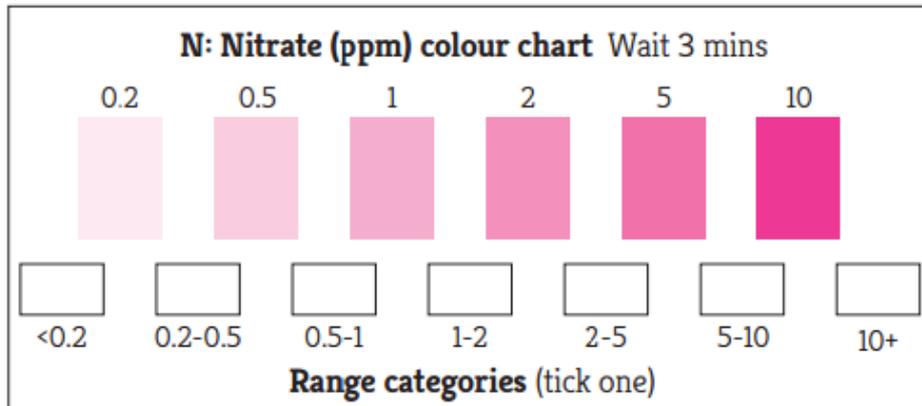
**Quick kits makes it possible for people to easily 'see' pollution for the first time.**

**Opportunity to get data from sites which would not otherwise be monitored - cheaply.**



**Cost per 'kit' (1 x N, 1 x P): £2.50**

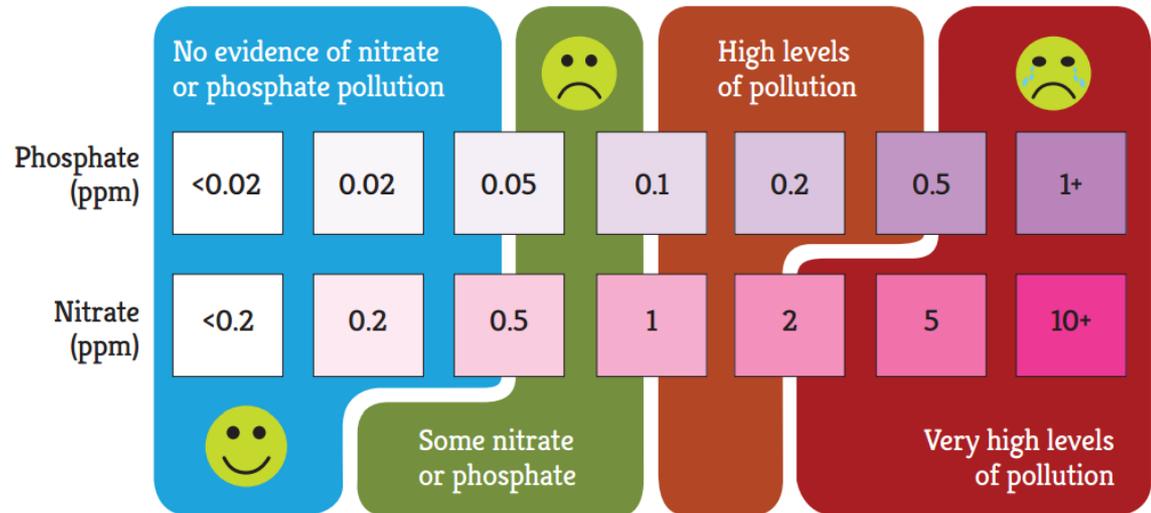
# Clean Water for Wildlife



# Classifying sites

## Three categories:

- No evidence of nitrate or phosphate pollution
- Some nitrate or phosphate pollution
- High or very high level of pollution



**P:** Categories intended to match 'High' (blue) and 'Good' (green) Water Framework Directive status

**N:** categories reflect literature values for High status

# The Lower Windrush Valley

A outstanding mosaic of wetland habitats of different ages, including lakes, ponds, rivers, ditches, streams and seepages - very rich in plants and animals, of *national* importance for stoneworts



<http://www.oxfordshire.gov.uk/lowerwindrushvalleyproject>

# LWV Results 2016



Table 1: Level of nutrient pollution

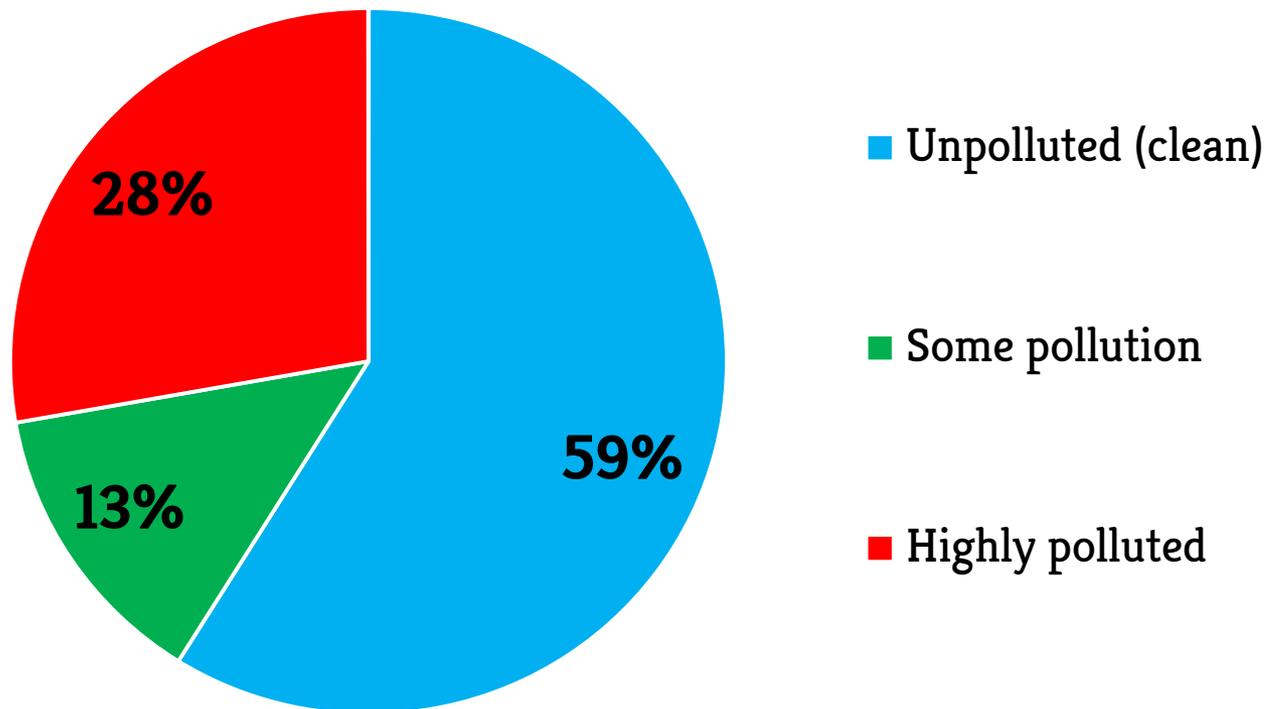
|              | Unpolluted (clean) | Some pollution | Highly polluted | Total     |
|--------------|--------------------|----------------|-----------------|-----------|
| Ponds        | 22                 | 2              | 4               | 26        |
| Lake         | 27                 | 8              | 3               | 38        |
| Ditch        | 2                  | 0              | 1               | 3         |
| River        | 0                  | 0              | 8               | 8         |
| Stream       | 2                  | 2              | 8               | 12        |
| Other - well | 0                  | 0              | 1               | 1         |
| <b>TOTAL</b> | <b>53</b>          | <b>12</b>      | <b>25</b>       | <b>90</b> |

**c. 40 volunteers collected 90 samples over 1 month**

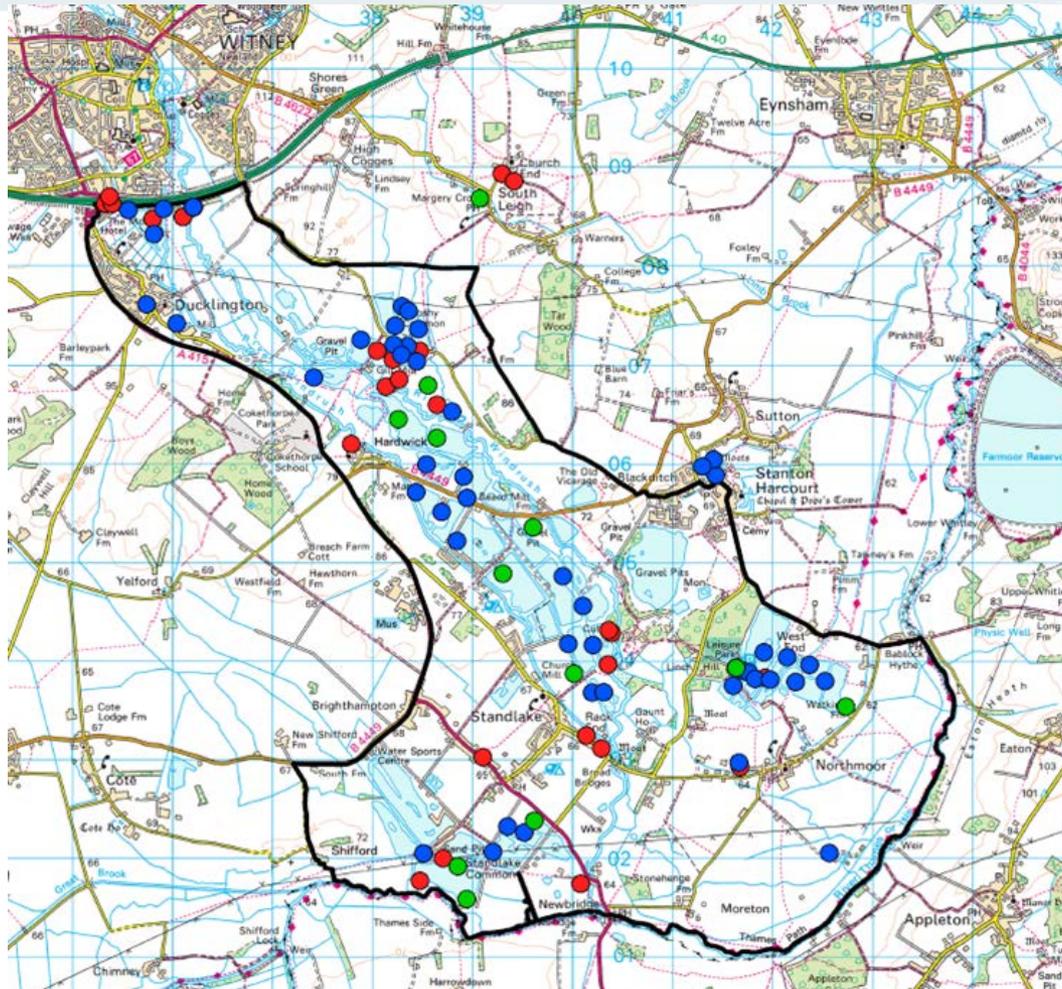
**FHT supplied the nutrient kits, LWV coordinated the volunteers and the collation of results**



# Level of nutrient pollution in the LWV

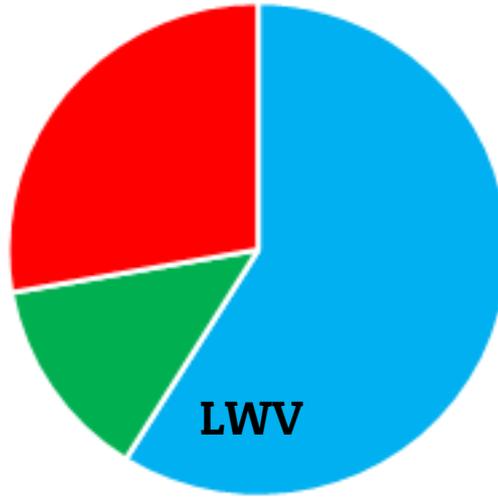


# LWV Results 2016

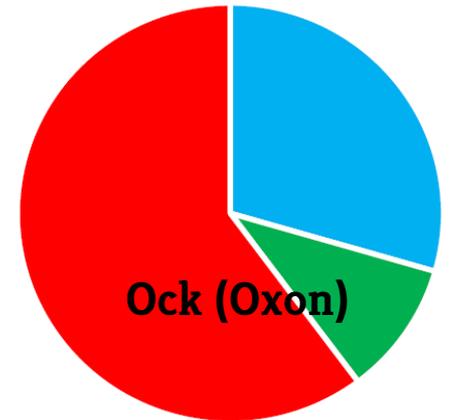
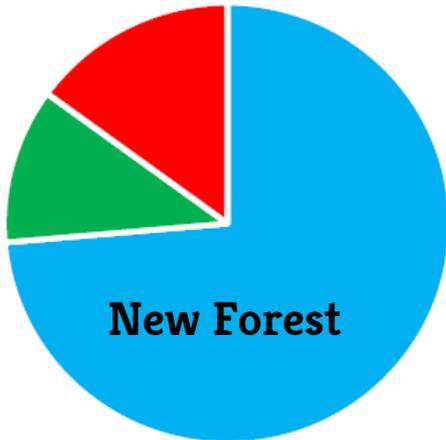




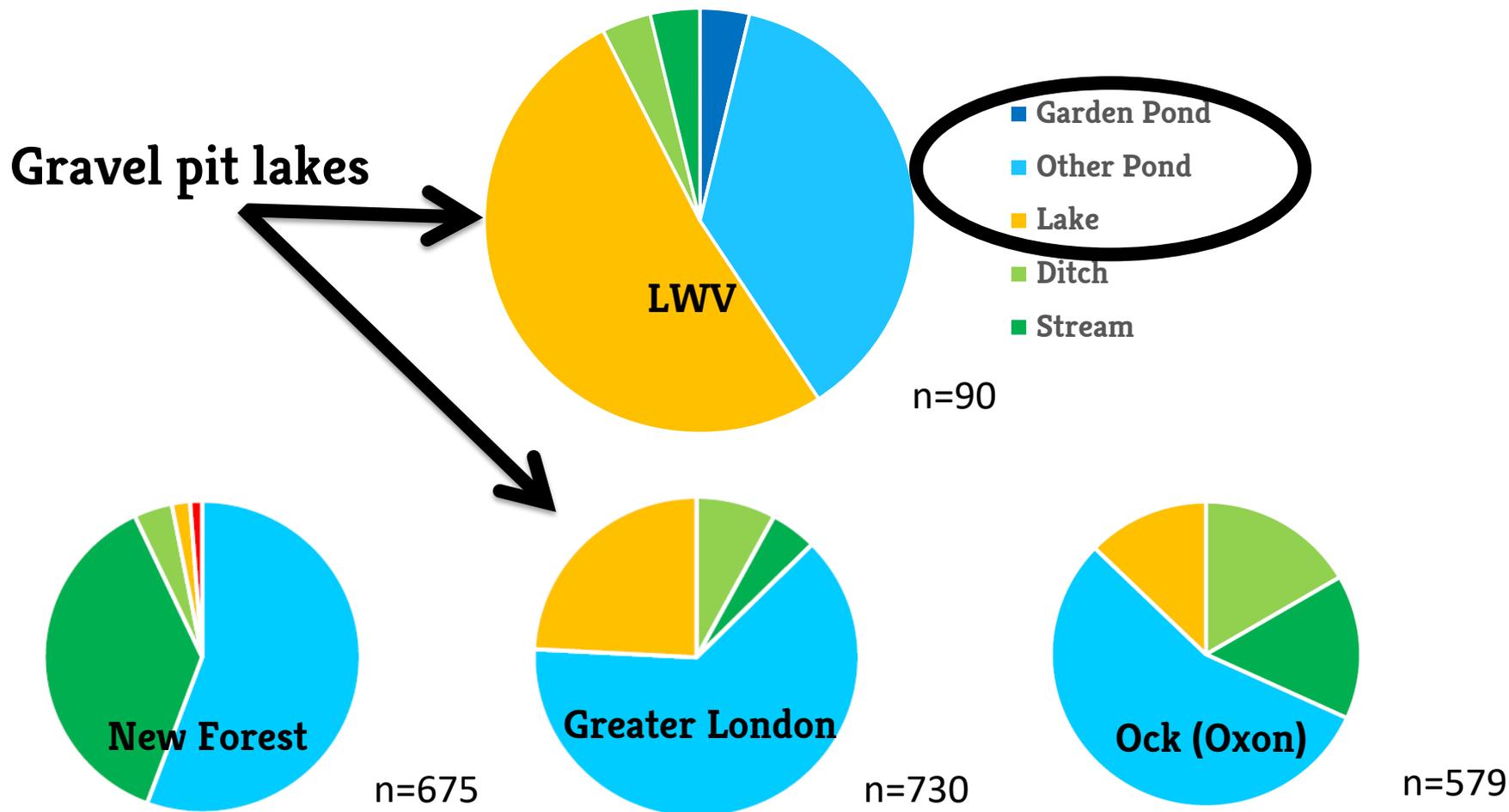
# How does the LWV compare?



- Highly polluted
- Some pollution
- Unpolluted (clean)



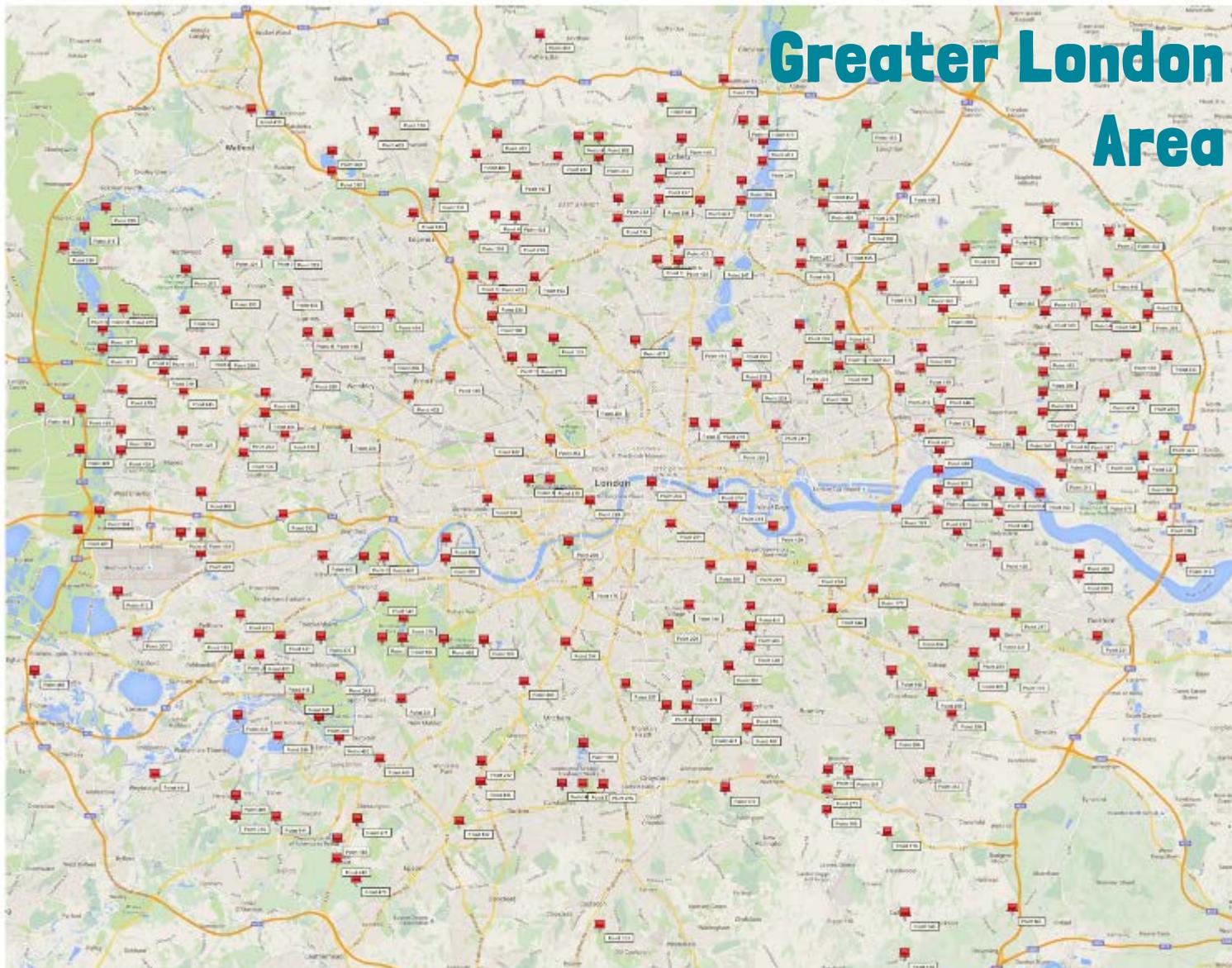
# Where is the clean water?



# Practical implications

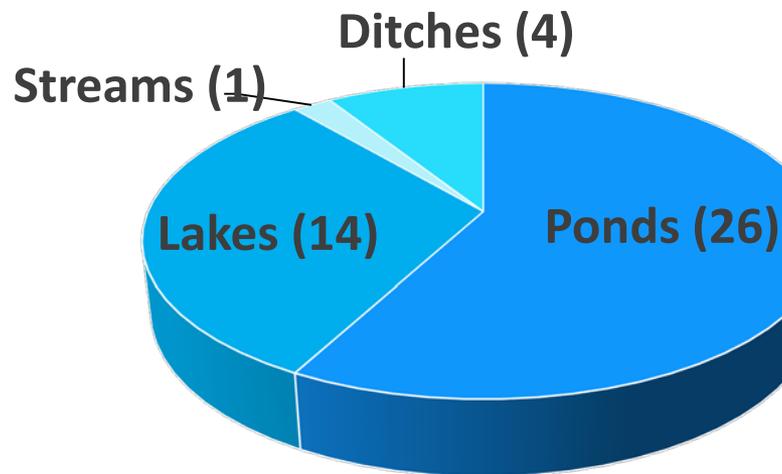
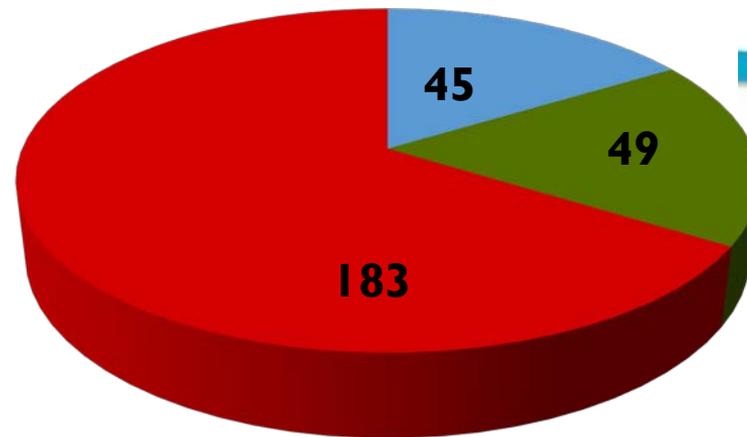
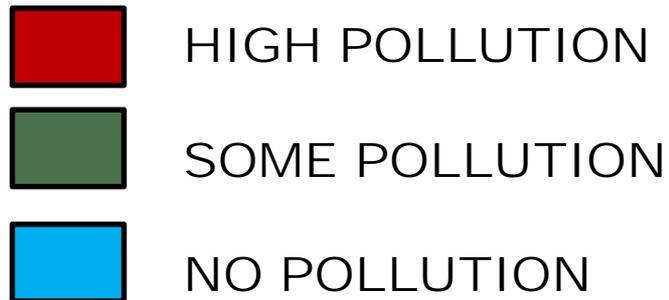
- Pilot projects in the Lower Windrush Valley and London suggest that the clean water resource on mineral sites may be *extensive*
- To maintain and continue to extent this resource:
  - Keep topsoil/nutrient-rich substrate away from waterbodies
  - Avoid linking with other waterbodies, especially running waters
  - Create clean water ponds:  
[freshwaterhabitats.org.uk/projects/million-ponds/](http://freshwaterhabitats.org.uk/projects/million-ponds/)

# Greater London Area



**EarthWatch London: We just completed first map using N & P rapid test kits to assess nutrient pollution in all water body types (ponds, streams, rivers, lakes, ditches) across London**

# Results: concentrations of N/ P



Only 45 of the 330 sites surveyed quality as Clean Water for Wildlife Sites, the majority of these were pond and lake habitats.

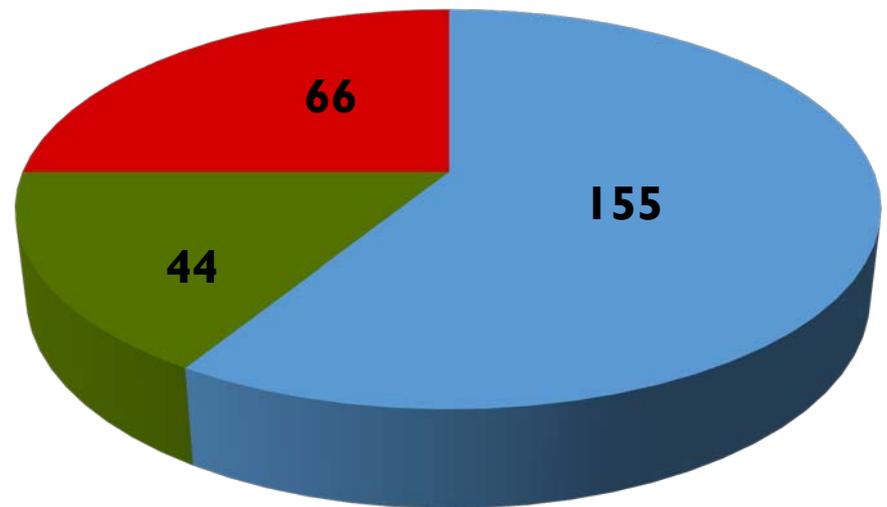
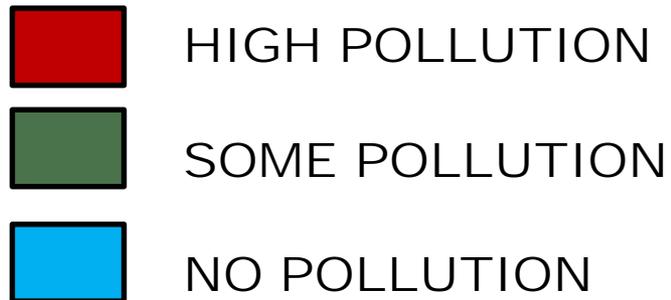


# New Forest Water Blitz

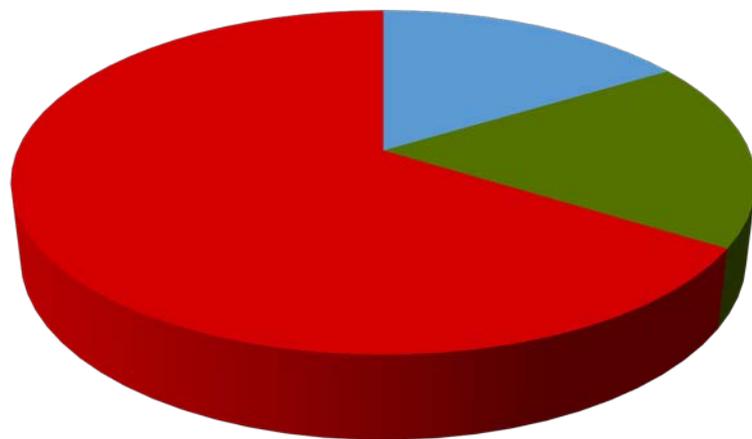


675 water samples were collected from the New Forest Catchment and surrounds over a three month period from 12th March to 12th June 2016.

# New Forest waterblitz results

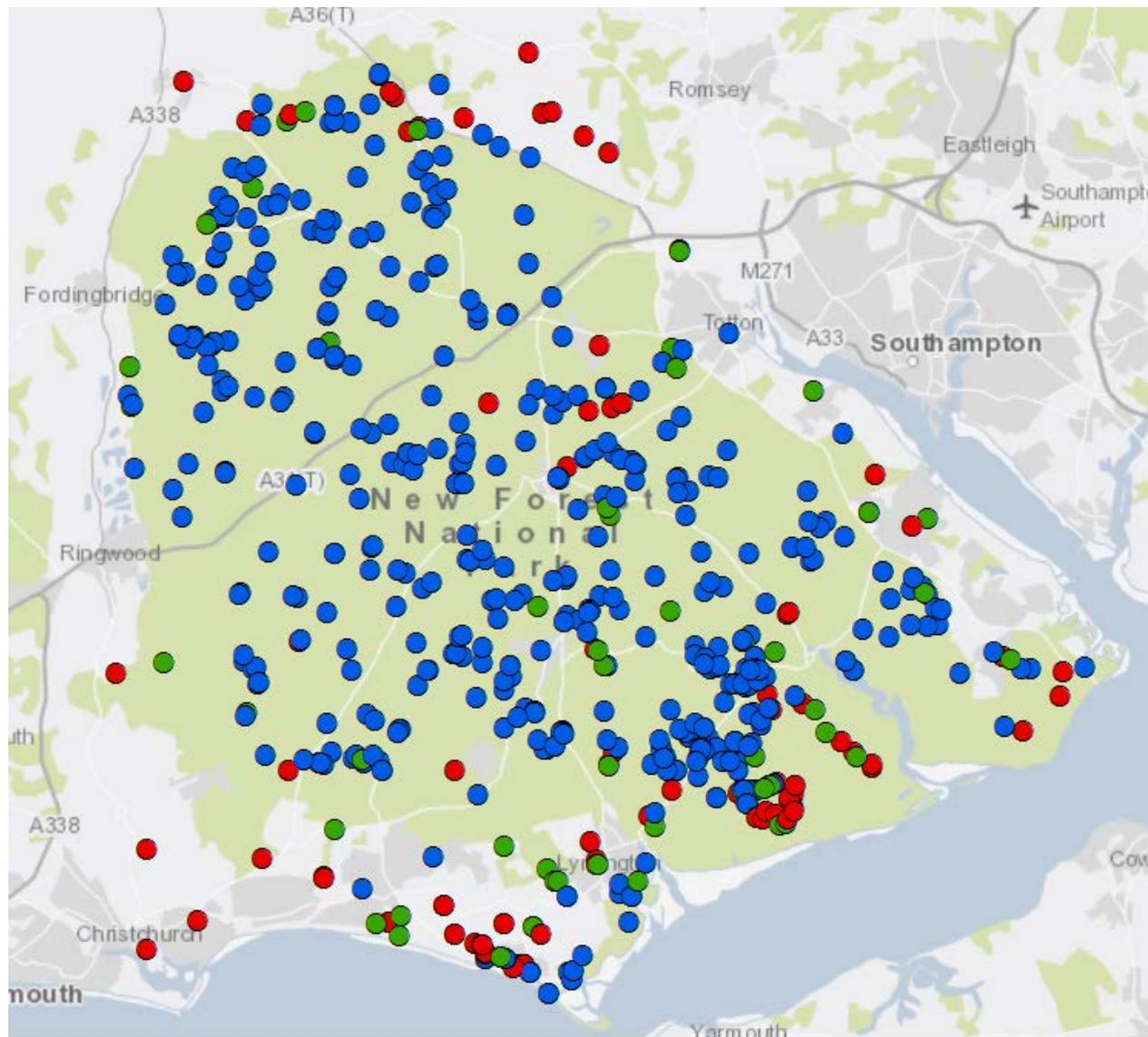


**New  
Forest**



**London**

The majority of ponds and headwater streams in the New Forest are clean water habitats. But, there are areas which are affected by diffuse and point source pollution.



The 'open forest', the area of uncultivated land in the core of the Forest produced 72% of the clean water samples, whilst the intensively farmed and urban areas on the edge of the Forest were dominated by polluted samples (76%).

# Where next?

- Clean water is a critical resource, and is likely to become even more so
- Clean Water for Wildlife is:
  - A cheap and easy way to test the concentration of nutrients
  - An instant way to visualise water quality in *all* waters
  - Positive engagement with local communities
- We are currently producing more case studies in the series to illustrate how individuals, communities and groups are using these data to protect freshwater habitats and species.

# Sign up today . . . !

